

1 Claims:

2 Having thus described our invention, what we claim as new and  
3 desire to secure by Letters Patent is as follows:

4 1. An information extraction system comprises a server and a  
5 client, connected via a communication network,  
6 wherein said server provides a data file for a client to  
7 browse; and

8 wherein said client includes  
9 browsing means for displaying the contents of said  
10 data file that is received from said server via said  
11 communication network,

12 operation detection means for detecting a  
13 predetermined specific operation based on a user's operation  
14 when said user reads said contents of said data file displayed  
15 by said browsing means, and

16 means for extracting information that is displayed at  
17 a location whereat said specific operation that is detected by  
18 said operation detection means is performed on a display screen  
19 of said browsing means.

20 2. An information extraction system comprising:

21 a web server for storing web contents; and

22 a client for receiving said web contents from said web  
23 server, via a communication network, and for displaying said  
24 web contents, said client including an operating event  
25 detection function for detecting, as a manipulation event, an  
26 operation performed by a user on a display screen of said web  
27 contents,

28 wherein a program package, which is written in a function

1 expansion program language for expanding the functions  
2 available to said client, is embedded in said web contents  
3 stored in said web server, said program package permitting said  
4 client to perform

5 a process for employing said operating event  
6 detection function of a client to detect an operating event,  
7 a process for analyzing a string of operating events  
8 that are detected to extract a predetermined, specific  
9 operation, and

10 a process for extracting from said web contents  
11 target information for said specific operation, and for  
12 returning said target information to said web server.

13 3. An information extraction system comprising:

14 a web server, for storing web contents; and

15 a client, for receiving said web contents from said web  
16 server, via a communication network, and for displaying said  
17 web contents,

18 wherein said client includes an operating event detection  
19 function for detecting, as a manipulation event, an operation  
20 performed by a user on a display screen of said web contents,

21 wherein said web server embeds, in said web contents, a  
22 program package, which is written in a function expansion  
23 program language, that expands the functions available to said  
24 client and that permits said client to perform

25 a process for employing said operating event  
26 detection function belonging to said client to detect an  
27 operating event,

28 a process for analyzing a string of operating events  
29 that are detected to extract a predetermined specific operation  
30 and

31 a process for extracting target information for said

specific operation from said web contents and for returning  
said target information to said web server, and  
wherein said web server transmits said program package to  
said client.

4. An information extraction system comprising:

a web server, for storing web contents;

a proxy server, for receiving web contents from said web  
server via a communication network and for performing an  
additional process; and

a client, for displaying said web contents for which said  
proxy server has performed said additional process,

wherein said client includes an operating event detection  
function for detecting, as a manipulation event, an operation  
performed by a user on a display screen of said web contents,

wherein said proxy server embeds, in said web contents  
received from said web server, a program package, which is  
written in a function expansion program language, for expanding  
the functions available to said client, and that permits said  
client to perform

a process for employing said operating event  
detection function belonging to said client to detect an  
operating event,

a process for analyzing a string of operating events  
that are detected to extract a predetermined specific operation  
and

a process for extracting target information for said  
specific operation from said web contents, and for returning  
said target information to said proxy server, and

wherein said proxy server transmits said program package  
to said client.

1 5. An information extraction system comprising:  
2 a web site, for storing web contents;  
3 an information processing apparatus that includes a web  
4 browser, for receiving said web contents from said web site,  
5 via a communication network, and for displaying said web  
6 contents; and  
7 a portal site, for said information processing apparatus,  
8 wherein said portal site, upon being accessed by said  
9 information processing apparatus, transmits, to said  
10 information processing apparatus, a program file that serves as  
11 a local proxy for said information processing apparatus,  
12 wherein said web browser of said information processing  
13 apparatus includes an operating event detection function for  
14 detecting, as an operating event, an operation performed by a  
15 user on a screen on which said web contents are displayed,  
16 wherein said local proxy, which is operated by said  
17 information processing apparatus, embeds in said web contents  
18 received from said web server a program package, which is  
19 written in a function expansion program language, for expanding  
20 the functions available with said web browser, said program  
21 package permitting said web browser to perform  
22 a process for employing said operating event  
23 detection function belonging to a web browser to detect an  
24 operating event,  
25 a process for analyzing a string of operating events  
26 that are detected to extract a predetermined, specific  
27 operation, and  
28 a process for extracting target information for said  
29 specific operation from said web contents, and  
30 wherein said web browser transmits, to said portal site,  
31 information extracted by said web browser.

1 6. An information extraction system comprising:

2 a web server, for storing web contents;

3 a proxy server, for receiving web contents from said web  
4 server via a communication network and for performing an  
5 additional process; and

6 a client, for displaying said web contents for which said  
7 proxy server has performed said additional process,

8 wherein said client includes an operating event detection  
9 function for detecting, as a manipulation event, an operation  
10 performed by a user on a display screen of said web contents,  
11 and

12 wherein said proxy server includes

13 operating event acquisition means, for collecting  
14 operating events that are detected by said client,

15 operating event analyzation means, for analyzing a  
16 string of said operating events that are received from said  
17 client and for extracting a predetermined specific operation,  
18 and

19 information extraction means, for extracting, from  
20 said web contents, target information for said predetermined  
21 specific operation.

22 7. An information processing apparatus comprising:

23 browsing means, for displaying document data;

24 operation detection means, for employing an input  
25 operation, performed by a user when said user browses said  
26 document data displayed by said browsing means, to detect an  
27 operation defined as a specific operation that said user  
28 unintentionally performed to obtain interesting information;  
29 and

30 character string extraction means, for extracting a  
31 character string that is displayed at a location whereat said

1 specific operation that is detected by said operation detection  
2 means is performed on a display screen of said browsing means.

3 8. The information processing apparatus according to claim 6,  
4 wherein said character string extraction means extracts a  
5 sentence unit or a line unit that includes said character  
6 string that is displayed at said location whereat said specific  
7 operation is performed.

8 9. An information collection apparatus that is connected to an  
9 information processing apparatus, which includes a web browser  
10 that receives web contents from a web server and displays said  
11 web contents, and which collects information concerning said  
12 information processing apparatus, comprising:

13 storage means, for storing a program file for embedding,  
14 in said web contents received from said web server, a program  
15 package, which is written in a function expansion program  
16 language, that expands the functions of said web browser and  
17 that permits said web browser to perform

18 a process for employing an operating event detection  
19 function performed by said information processing apparatus to  
20 detect an operating event,

21 a process for analyzing a string of operating events  
22 that are detected to extract a predetermined specific  
23 operation, and

24 a process for extracting target information for said  
25 specific operation from said web contents;

26 transmission means, for reading said program file from  
27 said storage means and for transmitting said program file to  
28 said information processing apparatus; and

29 information collection means, for collecting said  
30 information extracted by said information processing apparatus.

1 10. An information collection apparatus according to claim 8,  
2 wherein said program file stored in said storage means of said  
3 information collection apparatus is prepared by a Java applet,  
4 and said program package, which is written in Java script, is  
5 embedded in said web contents.

6 11. A character string extraction method comprising the steps  
7 of:

8 detecting a predetermined, specific operation based on an  
9 input operation performed by a user on a display screen on  
10 which document data are displayed; and

11 extracting, as a unit, a sentence or a line that includes  
12 a character string that is displayed at a location whereat said  
13 specific operation that is detected has been performed on said  
14 display screen.

15 12. A character string extraction method comprising the steps  
16 of:

17 detecting, based on an input operation performed by a user  
18 on a display screen on which document data are displayed, a  
19 tracing and reading movement by which the pointer of a pointing  
20 device is moved along lines in a document that is displayed;  
21 and

22 extracting, as a unit, a sentence or a line that includes  
23 a character string that is displayed at a location whereat said  
24 tracing and reading operation has been performed on said  
25 display screen.

26 13. The character string extraction method according to claim  
27 11, wherein, at said step of extracting a character string, a  
28 sentence or a line that includes a character string belonging

1 to a document immediately above a character string selected  
2 using said pointer is moved to another location on said display  
3 screen.

4 14. A character string extraction method comprising the steps  
5 of:

6 employing an input operation performed by a user on a  
7 display screen on which document data are displayed to detect a  
8 line tracing and reading operation during which lines of a  
9 displayed document are pointed at in order, while the pointer  
10 of a pointing device is moved in a direction perpendicular to  
11 said lines; and

12 extracting as a unit a sentence or a line that includes a  
13 character string that is displayed at a location whereat said  
14 line tracing and reading operation has been performed on said  
15 display screen.

16 15. A storage medium on which the input means of a computer  
17 stores a computer-readable program that permits said computer  
18 to perform:

19 a process for displaying the contents of document data;  
20 an process for detecting a predetermined specific  
21 operation based on a user's operation on a display screen where  
22 said document data are displayed; and

23 a process for extracting a character string that is  
24 displayed at a location whereat said specific operation that is  
25 detected is performed on said display screen.

26 16. An article of manufacture comprising a computer usable  
27 medium having computer readable program code means embodied  
28 therein for causing character string extraction, the computer  
29 readable program code means in said article of manufacture



1 comprising computer readable program code means for causing a  
2 computer to effect the steps of claim 11.

3 17. An article of manufacture comprising a computer usable  
4 medium having computer readable program code means embodied  
5 therein for causing character string extraction, the computer  
6 readable program code means in said article of manufacture  
7 comprising computer readable program code means for causing a  
8 computer to effect the steps of claim 14.

9 18. A program storage device readable by machine, tangibly  
10 embodying a program of instructions executable by the machine to  
11 perform method steps for character string extraction, said  
12 method steps comprising the steps of claim 11.

13 19. A program storage device readable by machine, tangibly  
14 embodying a program of instructions executable by the machine to  
15 perform method steps for character string extraction, said  
16 method steps comprising the steps of claim 12.

17 20. A program storage device readable by machine, tangibly  
18 embodying a program of instructions executable by the machine to  
19 perform method steps for character string extraction, said  
20 method steps comprising the steps of claim 14.

21 21. An article of manufacture comprising a computer usable  
22 medium having computer readable program code means embodied  
23 therein for causing character string extraction, the computer  
24 readable program code means in said article of manufacture  
25 comprising computer readable program code means for causing a  
26 computer to effect the steps of claim 12.

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